UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,103	12/28/1999	ANOOP GHANWANI	2204/150	9599

34845	7590	02/06/2006	

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EXAMINER
PRIETO, BEATRIZ

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/473,103	GHANWANI ET AL.
Office Action Summary	Examiner	Art Unit	
	Prieto B.	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>06 December 2005</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-15* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-15* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>28 December 1999</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is in response to Amendment/RCE filed 12/06/05; claims 1-15 remain pending and have been examined.

2.   Regarding claims as amended, particularly, the negative limitation on independent claims 1, 6 and 11, Applicant has pointed out on 02/01/2006 adequate support for this amendment, during a brief conversation initiated by examiner. Specifically, support may be found at least on p. 16, showing that the amendment is in compliance with MPEP §2163.06.

3.   In the spirit of compact prosecution and applicant's request and her disposition assist in accelerating prosecution as much as possible, a thorough search has been conducted. The amended language or clauses attempt to point out a particular the aspect of the invention, namely, using a single label in a packet traveling between autonomous domains (inter-domain path) and not performing label stacking. This as best understood aspect has been fully considered. Examiner continues to remain available for assistance.

4.   Amendment to claims 1, 6 and 11 obviated previous second paragraph of 35 U.S.C. §112 rejection, which is hereby withdrawn.

Claim Rejection under 35 U.S.C. 103

5.   Quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action may be found in previous office action.

6.   Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over MPLS Study, Project: Competence Center for ATM Components, Roth et. al., Research Institute of Open Communication Systems, pages 1-42 (referred to as Roth hereafter) in view of Tag Switching Architecture Overview, Rekhter, Y., et. al., IEEE Proc, vol 85, No. 12, Dec 1997, p. 1973-1983. (Rekhter hereafter).

Regarding claim 1, Roth discloses with respect to establishing label switched paths, without the use of multi-label stacking, the system/method comprising:

mapping in a label switching router (LSR) a first label of an protocol message to a second next hop label associated with a next hop (forwarding equivalency class address) (sections 3.1-3.2 on p. 10-12);

swapping at said LSR said first label with a second label in said protocol message (section 3.2 on page 12);

forwarding at said LSR said protocol message to next hop device according to said second next hop label (section 3.1-3.2 on p. 10-12);

receiving at border router (BR) from a first autonomous system a protocol message from a second autonomous system i.e. inter-domain routing between Autonomous Systems via Border Router (BRs) (Fig. 1 on page 5) communicating using an inter-domain routing protocol (e.g. BGP-4);

wherein each router set up its routing table from the exchanged of reachability information using routing protocols (section 2.1 on pages 5-6); however Roth does not explicitly teach where the border router support inter-domain routing protocol for communicating between autonomous systems are label switching capable using a single label in the label stack;

Rekhter discloses a tag switching forwarding paradigm (label swapping) that enables improved forwarding performance while maintaining competitive price/performance (p. 1973, right column). Rekhter, teaches border switch support inter-domain routing protocol for communicating between domains (autonomous systems) are label switching capable where the packet between said autonomous systems contain one label. Specifically, when a packet is forwarded between border switches in different domains, the packet contains just one tag associated with an exterior route. However, for intra-domain communication, i.e. within the domain, label stacking utilized (p. 1977, right hand column); further teaching

mapping in a switch a first incoming label of packet to a second label associated with an address, swapping at switch said first label with a second label in said packet and forwarding at said switch said packet to said address according to said second label (p. 1974, left column);

It would have been obvious to one ordinary skilled in the art at the time the invention was made that the border router supporting intercommunication between autonomous system discussed in the Roth reference are label switching capable as exemplified by Rekhter. One ordinary skilled in the art would have been readily apparent of the existing MPLS framework disclosed by Rosen including to use of MPLS egress node which handle traffic as it leaves an MPLS domain and MPS ingress node which

handling traffic as it enters an MPLS domain for supporting routing at a first MPLS border (egress) router associated with a first autonomous system, packets associated with a first label associated therewith to a second MPLS border (ingress) router associated with a second autonomous system associated with a second label associated with traffic entering therein, wherein stacking labels is not performed for inter-domain communication. One of ordinary skill in the art would be motivated to applied Rekhter's teachings because in doing so performance is improved while maintaining competitive price/performance.

Regarding claim 2, mapping, receiving, replacing and forwarding limitations are substantially the same as those disclosed on claim 1, same rationale of rejection is applicable, further

establishing an incoming label switched path associated with a first label over said first autonomous system (Rosen: ingress switched created path or route, where labels are assigned to routes associated with nodes e.g. ingress or egress nose of the label switched path (LSP) see section 2.13 on page 16, associated with an autonomous MLS domain see ingress domain node section 1.2 on pages 5-7);

establishing an outgoing label switched path over said second autonomous system (Rosen: egress switched created path or route, where labels are assigned to routes associated with nodes e.g. ingress or egress nose of the LSP see section 2.13 on page 16 associated with an autonomous MPLS domain see egress domain node section 1.2 on pages 5-7);

learning said second label associated with said downstream neighboring (next hop) device in said second autonomous system (Rosen: downstream nodes inform/distribute to upstream nodes label assignments, see section 2.4 on page 10).

Regarding claim 3, Label Distribution Protocol to setup said outgoing label switched path to a downstream neighboring border device (Rosen: section 2.5 page 11 and section 2.2 on page 32).

Regarding claim 4, establishing a Label Distribution Protocol session with said downstream neighboring (next hop) device to distribute label associated with said downstream neighboring (next hop) device (Rosen: section 2.4-2.5).

Regarding claim 5, creating/maintain in said label information base comprising an entry mapping said first label from said first autonomous system to said second label in said second autonomous system (Roth: sections 3.1-3.2 on p. 10-12).

Regarding claim 6, this apparatus claim comprises the logic operably for performing the method discussed on claim 1, same rationale of rejection is applicable.

Regarding claim 7, this claim comprises limitations substantially the same as those discussed on claims 1-2, same rationale of rejection is applicable.

Regarding claims 8-10, these claims are substantially the same as claims 3-5, respectively, discussed above same rationale of rejection is applicable.

Regarding claim 11, comprising the program product comprising a computer readable medium having embodied therein a computer program for performing the method discussed on claim 1, rejected for obviousness under U.S.C. 103, this same rationale is also applied to computer program product and logic means claims.

Regarding claim 12, comprising the program product for performing the method discussed on claims 1-2, rejected for obviousness under U.S.C. 103, this same rationale is also applied to program product and logic means claims.

Regarding claim 13, substantially the same as claims 8 and 3, rejected for obviousness under U.S.C. 103, this same rationale is also applied to program product and logic means claims.

Regarding claim 14, substantially the same as claims 9 and 4, rejected for obviousness under U.S.C. 103, this same rationale is also applied to program product and logic means claims.

Regarding claim 15, substantially the same as claims 10 and 5, rejected for obviousness under U.S.C. 103, this same rationale is also applied to program product and logic means claims.

Citation of Pertinent Art:

7.   The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Copies of Non-Patent Literature documents cited will be provided as set forth in MPEP§ 707.05(a):

Multi-protocol label switching in ATM networks, Hagard, G. & Wolf, M., Ericsson Review, No. 1, 1998.

Hagard disclosure regarding MPLS that label stacks are used to allow label-switched paths to cross one or more autonomous systems, the MPLS architecture provides a mechanism for tunneling an inter-domain label-switched path between two border routers through an intra-domain label-switched path.

The purpose of multiple label stacks/stacking is for carrying intra-domain routing, i.e. routing within the domain or across a first domain to another domain, that is both intra-domain and inter-domain, where the purpose of the second label stack is to support inter-domain routing, i.e. between domains. Thereby, it is non-obvious from the disclosure in Hagard that inter-domain routing only requires one label stack, thereby label stacking would not required.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (571) 272-3902. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Andrew T. Caldwell can be reached at (571) 272-3868. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system, status information for published application may be obtained from either Private or Public PAIR, for unpublished application Private PAIR only (see http://pair-direct.uspto.gov or the Electronic Business Center at 866-217-9197 (toll-free).

Any response to this action should be mailed to:
                    Commissioner of Patents and Trademarks
                    P.O. Box 1450
                    Alexandria, VA 22313-1450

Hand carried or delivered to:
                    Customer Service Window located at the Randolph Bldg.
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                    Alexandria, VA 22314

Faxed to the Central Fax Office:
                    (571) 273-8300 (New Central Fax No.) or Telephone:

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BEATRIZ PRIETO
PRIMARY EXAMINER
2/2/06